Robert Bunsen did a whole lot more than invent the Bunsen burner

Inventing the Bunsen burner was just one of the achievements of Robert Bunsen, celebrated today in a 200th anniversary Bunsen Google doodle. He was also a stupendous chemist



Google doodle celebrating the birth of ace chemist and inventor of the Bunsen burner Robert Bunsen on 30 March 1811. Image: Public domain

It's 200 years to the day since the birth of Robert Bunsen, the German chemist famous for inventing the ubiquitous Bunsen burner. But Bunsen's scientific legacy is far, far more important than that – he was one of the most ingenious chemists of the 19th century, whose work led to the discovery of a new element, an antidote for arsenic poisoning and would one day provide clues to the constituents of stars.

So it's fitting that Google is celebrating Bunsen's legacy today with an animated [Google doodle](http://www.google.co.uk/webhp?hl=en) with bubbling colourful liquids in flasks, a distillation column, test tubes, taps and powering it all, of course, the famous burner.

For this modest, quiet man, the Bunsen burner was simply a means to an end. Bunsen and his faithful lab assistant Peter Desaga (surely the original [Beaker](http://muppet.wikia.com/wiki/Beaker)?) needed a very hot, clean flame to pursue their main interest: the characteristic, brightly coloured light emitted by different elements when they are heated. Bunsen was the first person to study these "emission spectra" systematically.

Bunsen and his colleague Gustav Kirchhoff went on to split this light into its constituent wavelengths using a prism, in the process inventing a prototype of today's spectroscopes and founding the brand new scientific field of spectroscopy. They discovered that every element emits a distinctive mix of wavelengths that can be used like a fingerprint to identify its presence.

It's the same trick that allows astronomers to train their instruments on stars and clouds of gas millions of light years away and say with confidence exactly what they're made of.

Bunsen identified the emission spectra of sodium, lithium and potassium. He also detected a previously unseen blue spectral line produced by mineral water which he guessed was being emitted by an unknown element. Having gone to the extraordinary length of distilling 40 tonnes of water to isolate 17 grams of the new element, he called it caesium, meaning "deep blue" in Latin. (As the radioactive isotope caesium-137 – with a half life of around 30 years – it's responsible for the deadly legacy of nuclear accidents like Chernobyl).

There's one more achievement that marks out Robert Bunsen (1811-1899) as a chemist worthy of his [Google doodle](http://www.theguardian.com/technology/google-doodle). Early in his career, he discovered that adding iron oxide hydrate to a solution in which arsenic was dissolved would precipitate the poison and render it harmless. To this day, the compound is used as an antidote for arsenic poisoning.

When school pupils first fire up their burners, their teachers would do well to mention this true hero of [chemistry](http://www.theguardian.com/science/chemistry).

Questions:

1. What is Bunsen the most famous for?
2. List all of Bunsen’s accomplishments mentioned in the article

a)

b)

c)

d)

1. Why is the Google symbol fitting for Bunsen’s 200th birthday?